

REMARKS

The Office Action dated February 20, 2007 was stated to be responsive to the communication filed November 25, 2003. The communication filed November 25, 2003 consisted of the original application papers for this application, i.e., November 25, 2003 is the filing date for this application. If the Examiner has not already done so, however, the Examiner is requested to take note of the fact that a substitute specification and a set of editorially amended claims were filed on April 30, 2004. These documents are contained in the electronic file for this application. The present Amendment, therefore, embodies the changes that were previously made in the Amendment filed on April 30, 2004.

In the Office Action dated February 20, 2007, claims 1, 2, 12 and 13 were rejected under 35 U.S.C. §102(e) as being anticipated by published PCT Application WO 02/093494 A2 (Gupta et al.). Claims 3-5 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gupta et al. in view of Fenster et al.

Claims 6-9 and 11 were stated to be allowable if rewritten in independent form. As discussed below, however, Applicant submits that amended claim 1 and the claims depending therefrom are patentable over the teachings of the Gupta et al. reference, and therefore these claims have been retained in dependent form at this time.

Independent claim 1 as originally filed concerned a method for surface contouring of a three-dimensional image, wherein a set of claims is placed through the three-dimensional image, and contours are determined that are imaged into each of the planes in this set, these contours being associated with a surface contour of the three-dimensional image. The contours determined in each plane in the set of

planes are then combined into a surface grid associated with the surface contour of the three-dimensional image.

Claim 1 has been amended to state that the planes in the set of planes intersect in a straight line, and are oriented at respectively different rotational angles around this straight line. This is generally shown in the example of Figure 2 of the present application, wherein the different planes E_1 through E_5 (forming the aforementioned set of planes) are separated from each other by angles, such as the angle indicated $\Delta\alpha$.

In addition to Figure 2 itself, support for this added language in claim 1 is present in the specification as originally filed in the paragraph bridging pages 6 and 7 (which is the paragraph beginning at page 7, line 7 in the substitute specification). Support for the added language is also present in the specification as originally filed in the paragraph beginning at page 16, line 9 (which is the paragraph beginning at page 18, line 14 of the substitute specification).

Applicant acknowledges that the Gupta et al. reference discloses a method for modeling three-dimensional anatomical structures, wherein an initial model has a number of image planes proceeding therethrough. These image planes in Gupta et al., however, do not intersect and are not rotated with respect to each other so as to be separated by different rotational angles. As explained at page 5, lines 1-17 of the Gupta et al. reference, the initial model is intersected with each of the image planes in the image volume. As can clearly be seen in Figure 10 of the Gupta et al. reference, these image planes are parallel to each other.

The Gupta et al. reference, therefore, does not disclose all of the method steps of claim 1 as arranged and operating in that claim, and thus does not anticipate claim 1, nor either of claims 12 or 13 depending therefrom.

Claim 1 also has been editorially amended so as to be consistent with the recently-enacted guidelines regarding statutory subject matter, which require a method claim to produce a tangible, useful result. Even though a rejection under 35 U.S.C. §101 was not made, based on the treatment that other applications have received, the undersigned representative of the Applicant expects that if claim 1 were not editorially amended to conform to those guidelines, it would be returned to the Examiner following a quality control review, and this editorial amendment in claim 1 would then have been necessitated at that time.

The above arguments also apply to the rejection of claims 3-5 under 35 U.S.C. §103(a) based on Gupta et al. and Fenster et al. For the reasons discussed above in connection with the Gupta et al. reference, even if that reference were modified in accordance with the teachings of Fenster et al., the subject matter of claims 3-5, which embody the subject matter of claim 1 therein, still would not result.

Moreover, as to the Fenster et al. reference itself, this reference discloses a three-dimensional ultrasound system wherein the ultrasound probe is moved over the target volume, and signals representing the reflected ultrasound waves are supplied to a computer wherein successive two-dimensional images of the target volume are reconstructed, so as to ultimately form a three-dimensional image of the target volume.

Therefore, although it is true that in the Fenster et al. reference the planes are rotated relative to each other as the probe is moved over the target volume, as shown for example in Figure 16 of the Fenster et al. reference, these planes merely indicate the position of the ultrasound probe, and are relevant only for the purpose of generating two-dimensional images that are then used to reconstruct a three-dimensional image of the overall target volume. There is no teaching or suggestion in the Fenster et al. reference to place a set of rotated planes through an already existing three-dimensional image. The Fenster et al. reference does not make any mention whatsoever of a need or desire or a technique for modeling a three-dimensional anatomical structure, or for surface contouring of a three-dimensional image of an object.

Therefore, despite the coincidental presence of rotated planes in the Fenster et al. reference that are present for a completely different purpose compared to the subject matter of the present application, there is no reason why a person of ordinary skill in the field of imaging processing and display would have any reason to make use of such planes as are disclosed in the Fenster et al. reference in the context of surface contouring as disclosed in Gupta et al. If such a person of ordinary skill had the insight to make such a use of the rotated planes in Fenster et al., Applicant submits this would be an insight supporting patentability rather than a basis for opposing patentability.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayment to account No. 501519.

Submitted by,

 (Reg. 28,982)

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